Task Order for a new proposed CDMP task

A. Name of organization and task leader(s).

William Rugen, Tiffany C. Vance
National Marine Fisheries Service/Alaska Fisheries Science Center
Nazila Merati
Office of Oceanic and Atmospheric Research/Pacific Marine Environmental Laboratory

B. Name or title of the task.

Keying of deck weather logsheets for SeaCat/Bongo stations in the North Pacific and Bering Sea.

C. Describe how the task will contribute to the modernization and utilization of a climate database.

Oceanographic research cruises in the Bering Sea and the Gulf of Alaska have collected deck weather information as a part of CTD and SeaCat operations for the past 20 years. CTD's and SeaCats are used to gather information on water properties and are often used in conjunction with various types of biological sampling. The deck weather logs provide information on the weather conditions (temperature, wind speed and direction, cloud cover, barometric pressure etc.) while the samples are being collected. SeaCat raw data can be processed without deck weather data but the results are of limited utility.

Deck weather logs for cruises prior to 2001 were collected on paper log sheets and have not been translated to a digital format. This task would allow us to modernize both the SeaCat database - by integrating weather data we can make calculations of air-sea fluxes - and to make the weather data themselves available as a separate database. Integration of the data to be keyed under this project with ongoing digital deck weather logs (post-2000) will allow us to create a database for the areas where we conduct research. The ESDIM program has funded the development of tools to integrate and reprocess SeaCat and deck weather data. These tools require that the deck weather data be in a digital format. FOCI program funds would be used to do the reprocessing and QC of SeaCat data once the deck weather data are integrated into the raw data files.

These efforts would support efforts of the FOCI program - a joint program between NMFS-Alaska Fisheries Science Center and OAR-Pacific Marine Environmental Laboratory. This joint research seeks to build sustainable fisheries while protecting species diversity by researching and predicting the impacts of climate-driven changes in ecosystems. The goal of our current efforts is to assess, understand, and forecast the states and dynamics of Gulf of Alaska and Bering Sea ecosystems. A primary objective is to develop a North Pacific monitoring network to detect changes in climate and levels of productivity. A second objective is to analyze detected change to gain an understanding of how the ecosystem works. As a part of these monitoring efforts, we need to create databases of past oceanic and weather conditions for comparison with current conditions. This understanding will assist with prediction of shifts in climate and oceanic regimes. Such near real-time forecasts are critical to anticipating changes in abundance, distribution, and dynamics of commercially important marine resources, endangered and threatened species, and other components of the ecosystem. This perspective will enable fishery managers to apply ecosystem principles in their stewardship of living marine resources.

D. Describe the task in detail,outlining what would be required of the contractor,what the task involves,including volume counts (i.e.number of documents,pages,charts,and condition of documents),and what would be provided by the agency. Describe all steps in the process so CDMP and the contractors can estimate the total cost.

The task would involve the keying in of data from the Deck Weather logs created by the officers on the ship's bridge during operations. The deck weather log consists of a single line of data depicting weather conditions, taken on an hourly basis. There may be additional single line records added during CTD or SeaCat operations. The data exist as paper logsheets where a single page covers the deck weather for approximately one day. The logsheets are in generally good condition and should be easily readable. An example of a log sheet is attached to this task order. We would provide Xerox copies of the log sheets that would not need to be returned to us at the completion of the data entry.

The deck weather logs we are interested in extend back in time from 2000 (when we started gathering the data automatically) to1985 (when the project started). We would like to work backwards in time from 2000, going back to 1985 as funding permits. Keying of these records would allow us to expand the weather database for use by colleagues who are looking at longer term patterns in the Bering Sea.

The total number of deck weather log entries for 1985 - 2000 would be approximately 37,000 entries. The estimated number of entries/year are as follows:

	Days at sea
1985:	56
1986:	71
1987:	121
1988:	129
1989:	135
1990:	62
1991:	99
1992:	75
1993:	98
1994:	118
1995:	122
1996:	87
1997:	126
1998:	61
1999:	90
2000:	82
Total:	1532

If we were to key back to1985 there would be a total of 1532 days at sea or about 37,000 lines.

<u>Processing Stream</u>

We would anticipate a processing stream similar to the following:

1. AFSC copies log sheets and sends them to the Contractor. This could either be by year or the whole collection of datasheets.

2. The contractor would develop the database application to hold the entered data in consultation with the AFSC database manager.
3. A single cruise's worth of data would be keyed in and sent to AFSC for inspection. At this point we would double-check that the database formats are acceptable. This would also give us a test database for our data dissemination integration and testing efforts.
4. Once the sample cruise is accepted, the Contractor would proceed to enter the data for the rest of the years.
5. Once all the logsheets are entered and the data CD(s) are received by AFSC, we will integrate the data and make a description of the final products available to CDMP managers.

Fields on CTD weather log and accompanying database fields:

Form Field Name	**Database Field Name**	**Field Type**	**Type Setting/Size**	**Comments**
Cruise Designation	CruiseName	Text	25	No field on log, added info
NOAA Ship	Vessel	Text	50	
Day	NA	NA		Do not enter
Date	Date	Date/Time	Medium Date	DD-MMM-YYYY
Time Zone	TimeZone	Text	3	
Time	Time	Date Time	Short Time	01 = 01:00, 02 = 02:00, etc
Position (Lat. And Long.)				
Latitude Deg				Enter following from this field
Latitude Min	LatDeg	Number	Integer	
Latitude Hemisphere	LatMin	Number	Single	3 decimal places
Longitude Deg	LatHemi	Text	1	Default W
Longitude Min	LongDeg	Number	Integer	
Longitude Hemisphere	LongMin	Number	Single	3 decimal places
Present Weather	LongHemi	Text	1	Default N
Visibilty (N.M.)	Visibility	Number	Byte	Nautical miles (nm)
Wind Dir. (True)	Weather	Text	15	
Wind Speed (Kts.)	WindDir	Number	Integer	Degrees
Sea Wave Height (Ft.)	WindSpeed	Text	6	Feet
Swell Waves Dir. (True)	SwellDir	Number	Integer	Degrees
Swell Waves Height (Ft.)	SwellHeight	Number	Byte	Feet
Sea Water Temp C	WaterTemp	Number	Byte	Degrees Centigrade
Sea Level Pressure (mb)	Pressure	Number	Integer	Millibars
Dry Bulb	DryBulb	Number	Single	1 decimal place
Wet Bulb	WetBulb	Number	Single	1 decimal place

Database development and QC:

Contractor is required to develop and implement a database and entry process for keying CTD/SeaCat Weather logs. Database will be built to meet above requirement. Database must allow for the extraction of data into a comma separated value format (.csv).
1. Each cruise will require a separate database. Database names will be comprised of cruise designation followed by '_CTDWLog' (i.e. mf0309_CTDWLog.mdb). Customer will supply information required for dictionary tables for sea state, visibility, cloud amount, cloud type, and Beaufort scale prior to keying.

2. Contractor is required to create database, entry forms, proofing procedures and functions, and supply hardware and software necessary to complete the task and transfer the finished product. The contractor is responsible to provide labor to complete these tasks.
3. The contractor shall provide an accuracy rate of 100% for Vessel and Project & Leg (cruise designation) fields and 99% for all other keystrokes entered. To meet this requirement data will be key entered and verified by a second blind keying or through an automated QC system based on performance and cost. If individual record fields are unreadable, a special code will be established to indicate this. Any keying problems later identified by customer shall be corrected by the contractor.
4. Data shall be provided via CD. CD will include text file with inventory of disk as well as label listing files present on CD. Contractor shall maintain a backup copy of each file until the project is deemed completed by customer.
5. Customer will have a contact available to answer questions concerning data to be entered when inconsistencies are encountered on data forms.
6. Customer will provide an inventory of cruise designations and number of forms per cruise designation by year.
7. Contractor shall produce a production plan to establish standards and schedule for completion.
8. All recommendations or solutions from the contractor for improving performance or quality under this task order are strongly encouraged.

E. Provide an estimate of the time needed for your agency to prepare the data for the CDMP contractors.

Location of all logsheets, copying logsheets, ensuring that logsheets for all SeaCat deployments have been located, creation of an inventory	1 month
Determination of data formats for integration with ESDIM tools and EPIC	2 weeks

F. Details the amount of funding requested for NOAA salaries in support of this task, e.g. for preparation of the data set for submission to the contractors, quality assurance efforts, making the data accessible, etc.

Location of all logsheets, copying logsheets, ensuring that logsheets for all SeaCat deployments have been located. (1 month)	$5,000
Evaluation of keyed data fields and integration with ESDIM project tools	$2,500
QA of integrated results (2 weeks)	$2,500
Integration of keyed data and processed SeaCat and weather data with EPIC (1 month) to make data accessible	$5,000
Total	$15,000

G. Include a statement as to whether these documents or data will be freely available via web access at a NOAA facility.
Data will be made freely available via the existing EPIC in situ data gateway available at www.pmel.noaa.gov/epic . This will ensure that the data are integrated with associated physical oceanographic data. The web site allows location and downloading of data by geographic location and time. After integration of the formats for the weather database, the data can be downloaded in a variety of formats and are provided with FGDC compliant metadata.

MF-03-01 EIT Cruise 2/6/03-2/10/03

NOAA FORM 77-13d (3-76)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

DECK LOG – WEATHER OBSERVATION SHEET

NOAA SHIP	DAY	DATE	TIME ZONE
MILLER FREEMAN	THURSDAY	06FEB2003	+9

TIME	POSITION (Lat. and Long.)	PRESENT WEATHER	VISIBILITY (N.M.)	WIND DIR. (True)	WIND SPEED (Kts.)	SEA WAVE HEIGHT (Ft.)	SWELL WAVES DIR. (True)	SWELL WAVES HEIGHT (Ft.)	SEA WATER TEMP. °C	SEA LEVEL PRESSURE (mb)	TEMPERATURE °C DRY BULB	TEMPERATURE °C WET BULB
01	56.46.1 N 153.37.7 W	CL	8	170	16	8-10	—	—	5.6	1019.0	5.9	3.8
02	56.38.9 N 153.55.4 W	CL	10	150	14	5-8	—	—	5.3	1019.7	5.3	3.7
03	56.41.5 N 154.19.6 W	CL	10	142	10	2-4	—	—	5.0	1019.9	5.3	4.5
04	56.31.7 N 154.04.2 W	CL	10	150	8	2-4	/	/	4.7	1020.3	6.2	5.2
05	56.52.0 N 154.01.0 W	CL	10	160	6	>2	/	/	4.6	1021.5	5.1	4.1
06	56.52.0 N 154.01.0 W	CL	10	133	6	>2	/	/	4.5	1021.5	4.6	3.8
07	56.52.0 N 154.01.0 W	CL	10	120	8	>2	/	/	4.5	1022.2	4.5	4.5
08	56 52.4 N 154 01.6 W	CL	10	110	15	1-2	/	/	4.6	1022.0	4.5.0	4.0
09	56.52.4 N 154.01.6 W	~~PC~~	10	110	12	1-2	220	2	4.5	1023.5	4.9	3.7
10	56.52.4 N 154.01.6	PC	10	092	17	1-2	220	2	4.6	1023.8	4.9	3.8
11	56.52.4 N 154.01.6 W	PC	10	101	17	1-2	220	1	4.5	1024	5.1	3.9
12	Anchor OPS											
13	~~56.50.7 N 154.07.6 W~~	~~CL~~	~~10~~	Drills		~~1-3~~						
14		Drills										
15	56°39.6'N 154°36.7'W	CL	8	092	24	1-4	/	/	5.1	1020.0	5.4	5.0
16	56.31.9 N 154.56.2 W	CL	6	090	27	3-6	120	3-6	5.0	1019.5	5.2	5.0
17	56.25.6 N 155.12.8 W	CL	6	100	28	3-8	120	6-10	5.6	1018.0	5.7	5.5
18	56 21 9 N 155 25 9 W	CL	6	094	29	9-12	/	/	5.7	1017.0	5.9	5.7
19	56, 13.1 N 155.46.6 W	CL	6	100	28	9-12	/	/	5.6	1017.0	5.4	5.2
20	56.08.8 N 155.58.5 W	CL/R	6	109	28	10-12	/	/	5.9	1016.0	5.9	5.8
21	56.02.4 N 156.14.9 W	CL/R	4	96	33	12-18	—	—	5.8	1014.5	5.7	5.7
22	55.52.2 N 156.21.5 W	CL/R	6	94	29	15-18	—	—	6.1	1013.9	5.9	5.7
23	55.51.9 N 156.50.5 W	CL/F/R	>2	126	24	15-30	—	—	5.9	1012.5	6.0	5.9
24	55.48.17 N 157°08.65 W	F	<1	128	32	15-20	—	—	5.7	1011.2	5.9	5.9

REMARKS SAT ON THE HOOK IN ALITAK BAY FOR CALIBRATIONS